

INFRASTRUCTURE PLANNING, WATER QUALITY & THE CLEAN WATER ACT

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The Federal Water Pollution Control Act Amendments of 1972, (The Clean Water Act), established a comprehensive Federal, State and Local Water Quality Management Program to prevent, reduce and eliminate water pollution. The general goals of this legislation were; 1, to achieve water quality conditions that are clean enough for swimming and other recreational uses, and, for the propagation of fish, shellfish and wildlife; and, 2, to ultimately have no discharges of pollutants into the nations waters.

The Clean Water Act provided for a series of required actions, deadlines and enforcement provisions intended to help attain the above goals. The U.S. Environmental Protection Agency (EPA) was made responsible for supervising the implementation of the requirements of the Act and Federal control responsibility was extended from inter-state waters to all U.S. waters. EPA was granted power to seek court injunctions against polluters creating health hazards or endangering livelihood, and Federal aid was made available to local governments to build wastewater treatment facilities.

In South Carolina, the Pollution Control Act serves to implement the provisions of the federal Clean Water Act in

this State. The S.C. Department of Health and Environmental Control (DHEC), was delegated the responsibility to implement the provisions of the Act. In the Harbor Project Study Area, the BCD Council of Governments (BCDCOG) was delegated the responsibility to develop and maintain the planning programs called for in Sections 201, and 208 of the Clean Water Act. The Act encouraged regional 201 and 208 planning programs in metropolitan areas.

During 1991, the Bureau of Water Pollution Control within DHEC formalized a Watershed Water Quality Strategy for Water Quality Management Planning based upon the watersheds of the five major river basins in the State. A primary purpose of this Strategy is to provide a structured and predictable schedule for carrying out planning program elements. Every five years the Department plans to either develop or revise one of the major watershed plans. This five year cycle started in 1992.

The five year watershed based planning cycle will allow the Department to focus its resources on targeted geographical areas. The quality of natural resource based planning should be enhanced as water quality can be assessed, and programs developed, on a watershed basis where natural system boundaries are utilized to limit planning areas.

The watershed plans will fulfill a number of EPA planning and reporting requirements especially those required under Sections 303(d), 305(b), 314, and 319 of the Clean Water Act. The requirements of each of these Sections may be summarized as follows:

Section 303(d), requires that the state identify waters for which effluent limits are not stringent enough to achieve any water quality standards applicable to such waters. The state is required to establish a priority ranking for such waters and establish Total Maximum Daily Loads (TMDL's) for each pollutant that EPA identifies as suitable for such a calculation. The TMDL's shall be established at a level necessary to implement the applicable water quality standards.

Section 305(b), requires the state to submit regular reports including;

- \* a description of the water quality of all navigable waters;
- \* an analysis of the extent to which navigable waters provide for swimming and other recreational uses, and, the propagation of fish, shellfish and wildlife;
- \* an analysis of the programs underway or needed to attain water quality goals;

- \* an estimate of the environmental, economic and social costs needed to achieve the goals of the Act; and,
- \* a description of the nature and extent of nonpoint sources, and recommended programs.

Section 314, Clean Lakes section, requires the submission of periodic reports that provide:

- \* an identification and classification according to eutrophic condition, of all publicly owned lakes;

- \* a description of the procedures, processes, and methods in place to control sources of pollution from such lakes, as well as, a description of the methods used to restore the quality of lakes with eutrophic problems;

- \* a list of publicly owned lakes for which uses are known to be impaired; and,

- \* an assessment of the status and trends in lake water quality and the nature and extent of pollution loading from point and nonpoint sources; and,

Section 319, nonpoint source, requires states to prepare nonpoint assessments identifying waters of the state which require control of nonpoint sources to attain water quality standards. Those categories of nonpoint sources which add

significant pollution loadings to those waters are identified, along with measures needed to control each category.

Another purpose of the watershed based planning program is to provide a basis for basin-wide reissuance of National Pollutant Discharge Elimination System (NPDES) permits on a rotating five (5) year basis. The watershed strategy will provide the data needed to develop and issue NPDES permits, wasteload allocations and TMDL's.

In the mid 1970's, the BCDCOG was designated as the planning agency responsible for the planning required under Sections 201 and 208 of the Clean Water Act. Regional planning programs were encouraged within metropolitan areas and the COG was a logical organization to provide this service. A summary of the 201 & 208 planning requirements is as follows:

\* Section 201, required the development of Wastewater Treatment Facility plans for upgrading existing systems and for providing treatment and collection services where they are needed to upgrade poor water quality conditions. Such plans were required to analyze and evaluate alternative waste treatment and transmission systems prior to the selection of a

facility design. All facilities were required to provide at least secondary levels of treatment, be designed to accommodate 20 years of future growth, and, be the most economical and environmentally sound systems possible.

The COG expended well over one million dollars on the 201 planning process by the time the first round of plans were completed in the early 1980's. Prior to the 201 program North Charleston was the only waste treatment system providing secondary levels of treatment in the Region. All other treatment facilities had to be upgraded to provide secondary levels of treatment. Treatment capacities also had to be increased in all treatment facilities in order to service hundreds of lagoons, and, urban subdivisions dependent upon septic tanks to dispose of wastewater. The Berkeley County and Dorchester County wastewater collection and treatment systems were created out of this 201 planning effort.

201 Facility Plans are not now required unless the proposed system improvements plan to take advantage of the State Water Pollution Control Revolving Fund. This loan program was established by the State to provide a continuing source of below market rate financing to public agencies implementing wastewater collection and treatment projects.

Most of the initial funding for this program originated

from EPA grants which included 201 planning requirements limiting their use.

The COG normally requires 208 Plan amendment requests to plan for a twenty year time horizon, and, to evaluate reuse and other measures to eliminate or reduce volumes of point source discharges.

\* Section 208 of the Clean Water Act provides that designated planning agencies will develop regional water quality management plans in areas with complex or unique water quality management conditions. The initial 208 Plan included:

- \* the 201 Facility plans being prepared at that time;  
(the needs for municipal waste treatment over a twenty year period including projections of future wasteloads) plus an inventory of other point source discharges.

- \* an evaluation of existing and potential water quality problems;

- \* the identification of "Designated Management Agencies" who were those agencies (and their service areas) needed to manage and carry out the plan;

- \* the development of a model to evaluate the impacts of wastewater flows into the Charleston Harbor system;  
and,

- \* an environmental Assessment of the plan.



The COG has maintained the 208 Plan for this Region to the present time. In 1985, EPA issued regulations that provided that no NPDES permit may be issued which is in conflict with an approved 208 Water Quality Management Plan.

Under an agreement with DHEC the COG now reviews all NPDES permit applications and certifies their conformance with the 208 plan prior to the issuance of a permit. Every effort is made to limit the review time to no more than five days. If the review encounters problems DHEC is so notified and permitting review process is delayed.

Certain planning functions and water quality issues require a policy statement to provide a common, consistent reference for decision making. The BCDCOG (208) Water Quality Management Plan includes contains policies which provide long term direction to the 208 water quality planning and day-to-day decision making. These policies are summarized as follows:

1. Essential Plan Contents. Essential Plan Contents include all activities which involve SCDHEC review and approval of Preliminary Engineering Reports; permit requests or plans and specifications for new and reissued NPDES permits; construction permits; sewage treatment facilities; waste load allocations; pump station; force mains; and outfall

lines in the Berkeley- Charleston-Dorchester Region. In brief, the plan identifies the location, sizing, staging, service area and level of treatment of all Wastewater Treatment Facilities with an NDPES Permit under the SC Discharge Permitting System.

2. Population Forecasts. Management Agency plans for system expansion should provide sufficient capacity to accommodate the 20-year growth projected in each service area. Forecasts should be consistent with such forecasts developed for other regional planning programs.

A. A basic foundation of water quality planning is the forecast of expected wastewater treatment needs, which is tied to future population, housing and employment levels. Forecasts help define wastewater flow rates and the capacity needed to treat the needed volume of wastewater. They also can be used to indicate when facility expansion or capital improvements may be needed in the future. They are not intended to be used as limits to capacity.

B. Population, housing and employment forecasts for the BCD Region will be utilized as guidelines for water quality planning activities. These forecasts will be evaluated every five years as required for transportation, economic development, community development and water quality planning purposes. The sum

of population, housing and employment forecasts for individual wastewater service areas should not significantly differ from the regional forecasts.

3. Stream Standards and Classifications. The COG 208 plan must recognize the stream classifications and standards adopted by the General Assembly and the effluent limitations developed by the DHEC to protect those standards. Watershed Studies undertaken by DHEC review existing stream standards and identify use impaired stream segments. DHEC also identifies the Total Maximum Daily Loadings (TMDL's) for use impaired stream segments. The BCDCOG will recommend allocations of the TMDL's among treatment facilities discharging into those stream segments.

4. Septic & Individual Disposal Systems. Such systems are an acceptable means of waste disposal assuming that they are designed and maintained properly and located on a suitable site. Unfortunately, poorly located, designed or failed systems are believed to contribute greatly to nonpoint source pollution problems in many local drainage basins in this region.

Where feasible, areas served by septic and individual disposal systems should be required to connect to a centralized treatment system, especially in those areas where seepage is believed to contribute

significantly to pollution problems. Such connections maximize the use of the system, its economical operation, and avoids surface and groundwater contamination resulting from septic and individual system failures.

5. Reuse of Wastewater. The 208 Plan encourages the concept of wastewater reuse as a means for the additional removal of pollutants, and as a means for reducing the number and/or volumes of discharges into surface waters.

6. Consolidation of Facilities. The consolidation of wastewater treatment and/or discharge facilities is encouraged where appropriate. The 208 plan may identify opportunities for facility consolidation. Often, larger treatment facilities can provide service more effectively while providing a higher degree of treatment, and accountability, than can be achieved through smaller facilities.

7. Groundwater. Groundwater quality should be considered in the development of long range facility plans. Those activities which have the potential to adversely affect groundwater resources need to be recognized and discouraged.

8. Sludge Disposal Practices. Beneficial use of sludge through land application, composting or similar uses is encouraged.

9. Nonpoint Source Management. The S.C. Nonpoint

Source Management Program describes how the State will address Nonpoint pollution problems from agricultural lands, forestlands, urban areas, marinas and recreational boating, hydrologic/wetland modification, mining activities and solid waste disposal. This program is coordinated by DHEC.

10. Wetlands. Activities affecting wetlands are regulated under sections 401 and 404 of the Clean Water Act as administered by DHEC and the Army Corps of Engineers.

11. Clean Lakes. The 208 plan will maintain a list of lakes in the region where eutrophication is a problem. The BCDCOG encourages local basin efforts to deal with these types of problems and will provide assistance as time and other resources allow.

12. Wasteload Allocation Strategy. In order to maintain a continual assessment of the existing, or potential, need to allocate TMDL's, as well as, to recommend TMDL's when necessary, the BCDCOG will maintain a standing Technical Advisory Committee to the BCDCOG Environmental Committee. This Committee will be appointed by the Chairman of the BCDCOG and include Major Industrial, Public and Private Wastewater Contributors in the Region. This Committee may also include representatives of other organizations deemed to be appropriate by the Chairman.

Recommendations from the Technical Committee shall

be considered as proposed Amendments to the 208 Water Quality Management Plan and be subject to public review and comment prior to any formal review by the Environmental Committee.

The BCDCOG recognizes that there are several alternative methods that may be utilized to determine and allocate TMDL's. The Technical Committee is encouraged to be creative in addressing the Wasteload Allocation problem. However, the following factors are presented as general guidelines for consideration by the committee:

a. Allocations should include sufficient capacity to allow for the continued population and economic growth of the Region;

b. Allocations must be determined in a timely manner. It is recommended that the committee be proactive and assess the Loading Capacities of stream segments as soon as possible. Contingency plans need to be developed in order to allow for a timely decision making process;

c. Costs of implementing allocation strategies should be fair to the affected dischargers. Costs of increasing treatment levels; the proportion of problem causing pollutants originating from any one discharge;

and, the history of compliance of dischargers with permit conditions should be considered by the Committee;

d. The COG may choose not to allocate capacity to a new, or expanded, discharge if alternatives to the discharge are reasonably available, or if the discharger has a poor history of compliance with permit conditions;

e. If necessary, basin-wide reallocations of TMDL's will be accomplished on a five year cycle in concert with the State Basin Planning Process. Interim reallocations will be considered, however, it is anticipated that interim reallocations would not need to be basin-wide in scope; and,

f. Permitted discharges which significantly exceed actual discharges may be considered as a means for reducing permitted loadings for short periods of time. The long term capacities of these treatment systems, however, need to be recognized and accounted for in long term basin plans for loading allocations.

13. Financing Options. The COG will assist, as possible, local wastewater collection and/or treatment agencies to obtain the financing necessary to implement the recommendations of the Regional 208 Plan.

### Watershed Management Considerations

The Watershed Water Quality Management Strategy planning program being sponsored by DHEC and the 208 Planning program sponsored by the BCDCOG are interdependent activities which serve to provide the waste treatment infrastructure needed to help meet the goals of the federal Clean Water Act. The Watershed Management Strategies set state water quality standards; provide an analysis of water quality conditions; establishes TMDLs where needed; and, provides for a regular systematic process for future planning activities. The 208 planning process provides the projections needed to anticipate the needs for municipal (and when possible private) waste treatment and transmission systems over a future twenty year planning horizon; identifies those agencies (and their areas of jurisdiction) needed to manage and carry out planning recommendations; identifies those existing and planned facilities designed to meet future facility needs; and, provides a mechanism to develop wasteload allocations among existing and anticipated dischargers within water quality limited bodies of water.

The projections needed to anticipate the needs for municipal treatment and transmission systems are developed in conjunction with those projections needed to support the



transportation planning process. This process is also on a five year major planning update process. Data items projected of interest to the 208 program include population, housing units, employment by place of employment, and school attendance. Projections are made for over 500 relatively small geographic areas (traffic zones) within the urbanizing portion of the Region. Projections are made by Census County Divisions outside the urbanizing area. The traffic zones may be combined to designate the primary growth areas requiring special attention to protect water quality conditions.

The process followed to develop the projections used in the 208 program includes numerous meetings with local municipal officials, representatives of school districts, utilities and large developers. The results do not represent a Regional Plan for the future distribution of the projected employment, housing units, etc., which is based upon stated growth management goals. However, these projections do reflect primary local planning provisions which anticipate the location, density and character of future growth. In a sense these projections reflect a conglomeration of local land use plans.